

REMARKS

The present Amendment is in response to the Office Action mailed October 14, 2009. Claims 29, 32, 46, and 52 are amended. Claims 29, 32-36, 38-52, and 55-59 are now pending in view of the above amendments.

Reconsideration of the application is respectfully requested in view of the above amendments to the claims and the following remarks. For the Examiner's convenience and reference, Applicant's remarks are presented in the order in which the corresponding issues were raised in the Office Action.

Please note that the following remarks are not intended to be an exhaustive enumeration of the distinctions between any cited references and the claimed invention. Rather, the distinctions identified and discussed below are presented solely by way of example to illustrate some of the differences between the claimed invention and the cited references. In addition, Applicants request that the Examiner carefully review any references discussed below to ensure that Applicants understanding and discussion of the references, if any, is consistent with the Examiner's understanding.

I. Rejection Under 35 U.S.C. § 112, Second Paragraph

The Examiner rejects claims 29, 32, 46 and 52 under 35 U.S.C. § 112, Second Paragraph for indefiniteness. In response, Applicants have amended claim 29, 32, 46, and 52 in accordance with suggestions provided by the Examiner

II. PRIOR ART REJECTIONS

A. Rejection Under 35 U.S.C. § 103

The Examiner rejects claims 29, 32, 33 and 43-56 under 35 U.S.C. § 103(a) as being unpatentable over Tamaru (U.S. Patent Publication No. 2002/0059320) in view of Yang-Huffman (U.S. Patent Publication No. 2003/0110252). Applicant respectfully traverses because a *prima facie* case of obviousness has not been established.

The present application discloses a method of managing information exchange on a worksite using an electronic data network, in particular a wireless network. The communicating apparatus are organized in different hierarchical levels by a management means. The hierarchical levels emerge from a determined dependency relationship of the apparatus on the worksite. Such apparatus can include mobile earth moving machines, static on- or off-site offices, supply and service tools, or measurement equipment.

The hierarchical organization of the communicating apparatuses allows the apparatuses to be accessed according to their functions, attributes, tasks, or groups rather than by their names or numbers. This allows intuitive access to each apparatus, independent of the assigned address of the apparatus actually being present on the worksite. The hierarchical order is achieved by an "URL" scheme, such as, for example: "construction-site/device-group/sub-group/device-type/device-x."

The management means organizes only the hierarchical structure of the apparatuses on the worksite. The actual communication is established directly from any apparatus to any apparatus. Since a particular apparatus can have multiple characteristics, it can also be accessed by multiple hierarchical URLs.

The present invention provides a management means for organizing information exchange on the worksite over an electronic network. The management means and network enable a direct and easy to handle establishment of connections from any apparatus to any other selected apparatus or group of apparatuses in the network.

Without the present invention, all the networked apparatuses in the worksite would be difficult to differentiate if they are accessed just by numbers, such as an IP-address. This problem is even worse since apparatuses on a worksite are subject to change because different tasks are carried out by different machines, moving from site to site or because of defects, service, and the like so that the IP-address of the desired apparatus is often unknown or changing. Also the fact that worksites, such as mines, tend to be of a size wherein not every apparatus is within communication-reach of the main office can further complicate the situation.

The present invention does allow for communication with and between the apparatuses on the worksite in a manner that is manageable (e.g., by machine and human) without the need of knowing all the addresses of the apparatuses currently present on the worksite. From a logical

point of view, the desired communication partner is not a specific address, but any apparatus capable of executing the desired tasks. Therefore, the addressing of a group of the apparatuses according to their functions, geographical position, or other characteristics is desirable and can be performed. For example, if an excavator needs refueling, it does not depend on a special refueling apparatus X with a special address, but any mobile or static apparatus, such as the closest, on the site capable supplying diesel-fuel can communicate with and provide the fuel to the excavator. The communication can include an introduction of a hierarchical structure like worksite/fuel-supply/diesel. To achieve this, a management means (e.g., management unit) is introduced, taking care of this hierarchical structure and its mapping to the addresses of the actual apparatus.

The technical change to achieve the invention is the introduction of logical hierarchical structures making the actual present apparatuses accessible in groups of their dependency relationship, classification, or other technical means. Since there are different points of view for such logical structures, more than one hierarchies of dependency relationship can exist, mapping the same devices from different points of view. An important effect of the claimed invention is that there is no centralized server storing a huge database containing the data of all possible apparatus, but only a much slimmer management unit, only storing the hierarchical information and a dynamical mapping of the different apparatuses based thereon.

Another important effect of the invention is that communication now can take place between two or more apparatuses directly without the need of each apparatus communicating with a server (or leader machine) that in turn communicates with another apparatus. Once an apparatus-apparatus communication-relationship has been established by the management unit according to their hierarchical structure, the individual apparatuses can communicate between themselves. This can help to dramatically reduce the load of the network and central, expensive server device is not needed.

In accordance with Applicant's understanding, *Tamaru* discloses a management system for a plurality of work-machines. The machines are assigned to a certain task, and are organized as a leader machine and follower machines. The leader machine is in communication with a database-server to get management information. The leader machine is responsible for delegating certain directions to the follower work machines. As such, only the leader machine

communicates with the server, and only the leader machine can communicate with the follower work machines. Such follower work machines are not disclosed to be capable of configured to communicate between themselves, and follower work machines do not communicate with other follower work machines in the management system taught by *Tamaru*. *Tamaru* teaches that the data produced by the follower work machines is sent to the leader machine where it is received by one communication device, and the data is forwarded to the database server by means of a second communication device. According to the data received, the server device prepares management information, which is provided back to the leader machine. The leader machine then distributes the management information to the follower work machines, which operate in accordance with the management information.

Accordingly, the communication in the system are split into a server <-> leader machine and a leader machine <-> follower work machines communication, both being a 1 to N, “single master” or “server-based” communication. A direct communication between any two follower work machines is not possible because there is no teaching related to a system or method of using a machine and human readable addressing structures for establishing the connections between follower work machines. The hierarchical organization of the follower work machines in *Tamaru* is of one fixed level and does not allow for direct addressing of a certain device or group of devices according to the hierarchical dependency relationship from another device. The follower work machines only communicate with the leader machine.

In accordance with the Applicant’s understanding, *Yang-Huffmann* discloses a method for network usage monitoring to collect per node usage data, such as for billing purpose. The SNMP-Protocol, standardized in RFC 1157, is used to gain access to the SNMP-capable devices on the network and to collect usage data from them. Based on this standardized sub-layer, network management applications, such as billing applications, legacy system applications, capacity planning applications, security applications, fraud management applications, fault management applications or network topology applications or the like, are disclosed for the execution of the common tasks involved in organizing, analyzing, billing, and keeping alive an electronic network. All those tasks are merely related to administer the network itself, not the actual information exchange between the end nodes of the network itself or even the physical tasks to be executed by the devices or groups of devices. Therefore, the disclosure of *Yang-*

Huffmann is clearly referred to as “network management”, since only the network itself is managed.

There is also no teaching in *Yang-Huffmann* about a management means (e.g., management unit) providing the collected management information, such as the mentioned network-map file from the topology application, as a service to other end nodes. *Yang-Huffmann* does not disclose a system or method for converting a hierarchical position into a network address. Topology-data in *Yang-Huffmann* is collected for local management purpose only.

The hierarchical topology that is represented by the network map file mentioned in *Yang-Huffmann* is clearly related to the hierarchical topology of the network, expressing which device is connected whereto. In the present invention, the communication relationship aspect is only a very small subset concerning the data routing in geographically large worksites, and because of the presence of movable apparatuses the hierarchy changes. However, the hierarchical topology of *Yang-Huffmann* is not equivalent to the present invention because of the mobility of the apparatuses in the present invention results in changing locations and geographical information has to be taken into account (e.g. GPS-Data as explained in detail in the description). A hierarchical level depending on the relationship of different apparatuses on the worksite that is determined according to the worksite management plan of the present invention is fundamentally different to a hierarchical topology position of a selected apparatus which is defined by the selected apparatus itself or hard-wiring or some device information that is associated with the devices, as disclosed by *Yang-Huffmann*.

Additionally, Applicant respectfully asserts that *Yang-Huffmann* does not disclose “*items of apparatus organized in a plurality of hierarchical levels according to a determined dependency relationship of the outdoor worksite*” and “*converting said address structure reflecting the hierarchical position of said selected item of apparatus into a corresponding device address for accessing said selected item of apparatus on said electronic network*”. Where *Yang-Huffmann* is mentioning a hierarchy, it is a hierarchy to identify and categorize all of the types of information (see, page 3, paragraph [0027]) and not hierarchical levels according to a determined dependency relationship of the outdoor worksite. Therefore, *Yang-Huffmann* does not disclose the claimed hierarchy to be converted to a device address.

Applicants further traverse the Examiner’s rejection for obviousness on the grounds that *Yang-Huffmann* is not within the scope of what may be considered as “prior art” relative to the present invention. *Yang-Huffman* is not in the same field of endeavor as the presently claimed invention. A person skilled in the art of the present invention would not search in the technical field of network usage monitoring and network billing for managing tasks and apparatus on a worksite, as the usage and load of the network is completely irrelevant for this task. Therefore, a person skilled in the art of the present invention would not look to *Yang-Huffman*. The restriction of the claimed invention to specific types of worksites makes an important difference to *Yang-Huffmann*, since *Yang-Huffmann*’s solution is a management system for a specifically different technical subject. Since *Yang-Huffmann* does not qualify as being in the field of endeavor of the present invention, its combination with another reference under 103 is improper, and a *prima facie* case of obviousness has not been established.

Additionally, Applicants traverse the Examiner’s rejection for obviousness on the grounds that the Examiner’s combination of *Tamaru* and *Yang-Huffmann* is improper. Under *KSR*, there must be a valid reason to modify or combine references in order to render a claimed invention obvious. Absent such a valid reason, a rejection based on a combination of references is unsupported and any rejection based on such a combination must be withdrawn. In this instance, there is not valid reason for the combination of a reference disclosing “single master” or “server-based” communication (*Tamaru*) and a reference disclosing “network management” (*Yang-Huffmann*). There is no valid reason to combine these references in order to attempt to arrive at the presently claimed invention. Even if a person skilled in the art of the present invention actually happened to find *Tamaru* and *Yang-Huffmann*, he would still not take into account a system for managing a network (*Yang-Huffmann*) when given the task of managing the plurality of apparatus on a worksite (*Tamaru*). Thus, the combination of these references could only be made by improper hindsight and using the Applicant’s application as the roadmap.

Furthermore, Applicant respectfully asserts that the combination of *Tamaru* and *Yang-Huffman* does not teach or suggest each and every element of independent claims 29 and 43.

In the first instance, the combination of *Tamaru* and *Yang-Huffmann* does not teach or suggest a system or method for granting access to a device by multiple hierarchical levels. Specifically, the combination does not teach or suggest, “wherein all said networked items of apparatus are organized in a plurality of hierarchical levels according to a determined dependency relationship of the outdoor worksite,” as recited in claims 29 and 52. (Emphasis added). The combination does not teach multiple hierarchical access that effects the management and enables some completely new approaches in the machine-machine communication that can be managed autonomously by the machines themselves, without the need of a centralized intelligence controlling each and every task and storing all the information of the whole worksite.

In the second instance, the combination does not teach or suggest management of a network topology through the address-translation. Specifically, the combination does not teach or suggest “operating by converting said address structure reflecting the hierarchical position of a selected networked item of apparatus into a corresponding device address for accessing said selected networked item of apparatus on said electronic data network,” as recited in claims 29 and 52. *Tamaru* does not teach such a management network topology through address-translation. Per definition, SNMP does not provide an address translation service to other device and also *Yang-Huffmann* does not disclose such a feature, especially not dependent on some worksite dependency relationship determined by some worksite management plan as in the present application.

Also, the combination does not teach or suggest a system or method for direct any apparatus to any apparatus communication under claims 29 and 43. Combining *Tamaru* and *Yang-Huffmann* results in a client-server communication network, whereas the present invention includes a peer-to-peer approach. While in *Tamaru* all the data is transferred through the server, the present application uses the server, as management means, only for the resolution of the hierarchical address of the desired communication partner. Afterwards, the actual data is transferred directly between the communication partners (e.g., any networked item of apparatus to any networked item of apparatus) thereby bypassing the server. This difference is a change in the network management level, and allows any networked item of apparatus to efficiently

communicate in a network mesh with different networked items of apparatus with decentralized intelligence and data holding.

Applicant respectfully asserts that the combination of *Tamaru* and *Yang-Huffman* teaches away from the presently claimed invention. Applicant respectfully asserts that such a combination of *Tamaru* and *Yang-Huffman* would lead to an implementation based on the usage of the SNMP-Protocol characterized by a centralized SNMP-Management-Station storing the Management Information Base (MIB) that centralizes all the information and information exchange. Except for the protocol used, this does not introduce much difference to *Tamaru*'s disclosure and its centralized database and management server as it is illustrated below in a comparison of a *Tamaru* and a SNMP setup. This clearly teaches away from the present invention of claims 29 and 52.

In view of the foregoing the combination of *Tamaru* and *Yang-Huffman* does not establish a *prima facie* case of obviousness for at least the following reasons: *Yang-Huffman* is not in the field of endeavor of the present invention; there is no valid reason to combine *Yang-Huffman*, which could only be combined by impermissible hindsight; the combination does not teach each and every element of the presently pending claims; and the combination actually teaches away from the present claims. Claims 32-36, 38-51, and 55-59 depend from either claim 29 or 52, and thereby are allowable for the same reasons claims 29 and 52 are allowable. Applicant respectfully requests withdrawal of this rejection.

The Examiner rejects claims 34-36 and 57-59 under 35 U.S.C. § 103(a) as being unpatentable over *Tamaru* (U.S. Patent Publication No. 2002/0059320) and *Yang-Huffman* (U.S. Patent Publication No. 2003/0110252) in view of *Soderberg et al* (U.S. Patent No. 6,519,626). Applicant respectfully traverses because a *prima facie* case of obviousness has not been established.

This rejection requires that the combination of *Tamaru* and *Yang-Huffman* making claims 29 and 52 obvious; however, claims 29 and 52 are allowable over the combination of *Tamaru* and *Yang-Huffman* for the reasons recited above. *Soderberg* does not cure the deficiencies of *Tamaru* and *Yang-Huffman* with regard to claims 29 and 52. Therefore, claims 29 and 52 are allowable over the combination of *Tamaru*, *Yang-Huffman*, and *Soderberg*.

Claims 34-36 and 57-59 depend from either claim 29 or 52, and thereby are allowable for the same reasons claims 29 and 52 are allowable. Applicant respectfully requests withdrawal of this rejection.

The Examiner rejects claims 38-42 under 35 U.S.C. § 103(a) as being unpatentable over *Tamaru* (U.S. Patent Publication No. 2002/0059320) and *Yang-Huffman* (U.S. Patent Publication No. 2003/0110252) in view of *Uhler* et al (U.S. Patent Publication No. 2001/0039587). Applicant respectfully traverses because a *prima facie* case of obviousness has not been established.

This rejection requires that the combination of *Tamaru* and *Yang-Huffman* making claim 29 obvious; however, claim 29 is allowable over the combination of *Tamaru* and *Yang-Huffman* for the reasons recited above. *Uhler* does not cure the deficiencies of *Tamaru* and *Yang-Huffman* with regard to claim 29. Therefore, claim 29 is allowable over the combination of *Tamaru*, *Yang-Huffman*, and *Uhler*. Claims 38-42 depend from claim 29, and thereby are allowable for the same reasons claims 29 and 52 are allowable. Applicant respectfully requests withdrawal of this rejection.

CONCLUSION

In view of the foregoing, Applicants believe the currently pending claims as amended are in allowable form. In the event that the Examiner finds remaining impediment to a prompt allowance of this application that may be clarified through a telephone interview, or which may be overcome by an Examiner's Amendment, the Examiner is requested to contact the undersigned attorney.

The Commissioner is hereby authorized to charge payment of any of the following fees that may be applicable to this communication, or credit any overpayment, to Deposit Account No. 23-3178: (1) any filing fees required under 37 CFR § 1.16; and/or (2) any patent application and reexamination processing fees under 37 CFR § 1.17; and/or (3) any post issuance fees under 37 CFR § 1.20. In addition, if any additional extension of time is required, which has not otherwise been requested, please consider this a petition therefore and charge any additional fees that may be required to Deposit Account No. 23-3178.

Dated this 7th day of January, 2010.

Respectfully submitted,

/David A. Jones/ Reg #50,004

DAVID A. JONES
Attorney for Applicant
Registration No. 50,004
Customer No. 057137
Telephone No. (801) 533-9800

DAJ:kmh:jbh
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